Winter Canola Planting Guide for the Southern Great Plains

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Winter canola production fits well into Great Plains agriculture as an alternative cash crop. The United States currently imports the equivalent of 2 million acres of canola production each year, thus, a domestic market for the oil and meal already exists. Canola is produced with the same equipment used for small grains. Yields of winter wheat in northern areas of the United States following canola have shown a 15% increase compared to wheat following wheat. This indicates a very positive rotational effect on wheat yields that are missed by growing continuous wheat. Growing canola also enables the producer to control weeds that are a problem in continuous wheat. The USDA-FSA considers canola an "other oilseed crop" and has LDP and loan programs for the crop.

Under ideal conditions, winter canola has a 20 to 30 percent greater yield potential than spring canola. Cooperative research efforts have resulted in cold tolerant varieties that consistently produce competitive yields in the southern Great Plains.

Canola is a management-responsive crop. Weather certainly plays a role in canola yields, but management makes the difference between average and above average yields. Canola should not be planted in the fall and ignored until harvest in June. Effective canola production requires hands-on involvement with the crop.

Field Selection and Rotation

Using clean, certified seed ensures a true-to-type crop with the performance characteristics expected.

Canola grows better in medium-textured, well-drained soils; but it will grow over a wide range of soil textures. A soil pH between 6.0 and 7.0 is optimal, and yields may be reduced significantly if pH is below 5.5. Canola does not tolerate water-logged conditions and should not be grown in fields prone to standing water, flooding, or poor drainage. Rotational considerations are important when selecting a site for canola production. Some broadleaf crops grown in the Great Plains are infested with the same diseases as canola. The best rotational crop with canola is small grains.

Past herbicide applications must be considered when growing canola because most varieties are sensitive to herbicide carryover. Table 1 lists common herbicides and the waiting period for each before canola can safely be seeded. The label on herbicides used in wheat and other small grains should always be read carefully before seeding canola after those crops.

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http://osufacts.okstate.edu

Table 1. Herbicide Restrictions for Canola (Time from herbicide application to planting)

Harmony Extra	60 days
Express	60 days
Ally	10 months if pH < 6.5, 18 months if pH > 6.5
Glean	18 months
Finesse	Label not specific, 14-18 months
Amber	No sooner than 4 months, do a field bioassay
Maverick	Not listed, 10-14 months
Olympus	Field bioassay required
Osprey	10 months
Atrazine	Second fall following application
Dual/Frontier	18 months
Beyond/Raptor	18 months
Stinger	No rotation restriction

Seeding

Drills with single or double disk openers, air seeders, and alfalfa equipment can all be used to plant canola; but soil conditions are more critical for its establishment than for wheat. Broadcasting the seed and harrowing it into the soil are not recommended planting practice. Lack of surface soil moisture at planting time, soil compaction, crusting, and waterlogging can prevent canola establishment. Growers should minimize the risks by following the guidelines below.

Seedbed Preparation

Conditions that promote rapid germination and early, uniform establishment are important for weed control, winter hardiness, and yield. The seedbed should be fairly level, firm, and moist. The soil surface should have good granular

structure with 30 to 45% fine material, with only enough large clods to prevent soil erosion. If the seedbed is too fine (overworked), it can lose soil moisture and can crust easier. A seedbed that is too cloddy can result in poor seed placement and moisture loss. Just the heel of your work boot will sink in a well-prepared seedbed. A moderate amount of crop residue on the soil surface is desirable to reduce soil erosion. An alternative to conventional tillage is to plant canola into a stale seedbed.

To help conserve moisture, each tillage operation should be shallower than the one before. Preplant fertilizer and herbicide applications should occur just before the final tillage operation. Like with wheat, the last tillage operation should occur soon before planting to avoid drying out the seedbed. It should be timed to destroy the last flush of weeds and bring soil moisture close to the soil surface. If necessary, rollers can be used with or after the last tillage operation to firm the soil and to allow moisture to migrate up into the planting zone. Press wheels on the drill also help improve seed-to-soil contact. Generally, fine-textured soils can be over packed to the point of restricting the supply of oxygen supply to seedling roots, causing poor early season growth and perhaps plant death.

Some producers have used packers to firm up the soil seedbed prior to planting or to increase soil- to-seed contact after planting. Preplant packing has the most advantage ahead of a double disk press drill and is only recommended ahead of a hoe-press or air seeders for moisture conservation or for depth control if soil conditions are very loose. Postplant packing should only be considered if the seeding equipment does not have press wheels; otherwise, this operation could hurt emergence and yield of canola.

Several producers in the southern Great Plains have been successful with no-till canola. No-till seeding equipment must cover the seed with 1/2 inch of soil to provide good seed-to-soil contact. Uniform sowing depth is also important in no-till.

Sandy-textured soils have weak soil structure and overworking these soils creates a fine seedbed that is very susceptible to water and wind erosion.

In contrast, clay-textured soils are more difficult to prepare a canola seedbed because the clods can be too large when worked wet, and they tend to crust once worked to a fine seedbed. Medium textured soils are easier to prepare a seedbed, but that is true for any crop.

Seeding Date

Seeding date is more important for canola than for wheat. As a general rule, canola should be planted 6 weeks before the first killing frost date (less than 25°F). It requires sufficient growth for good winter hardiness (3 to 6 leaves). The optimum planting dates to maximize yields are shown in Figure 1.

Planting too early can result in large plants that use excessive water and nutrients during fall growth. Excess growth can actually decrease winter survival. Planting too late can result in small plants that have not stored sufficient reserves for winter survival. Thus, winter survival often decreases with too early or too late planting. Planting date can also affect maturity, canopy cover, and weed control. In general, if canola cannot be planted by October 1, plant small grains instead.

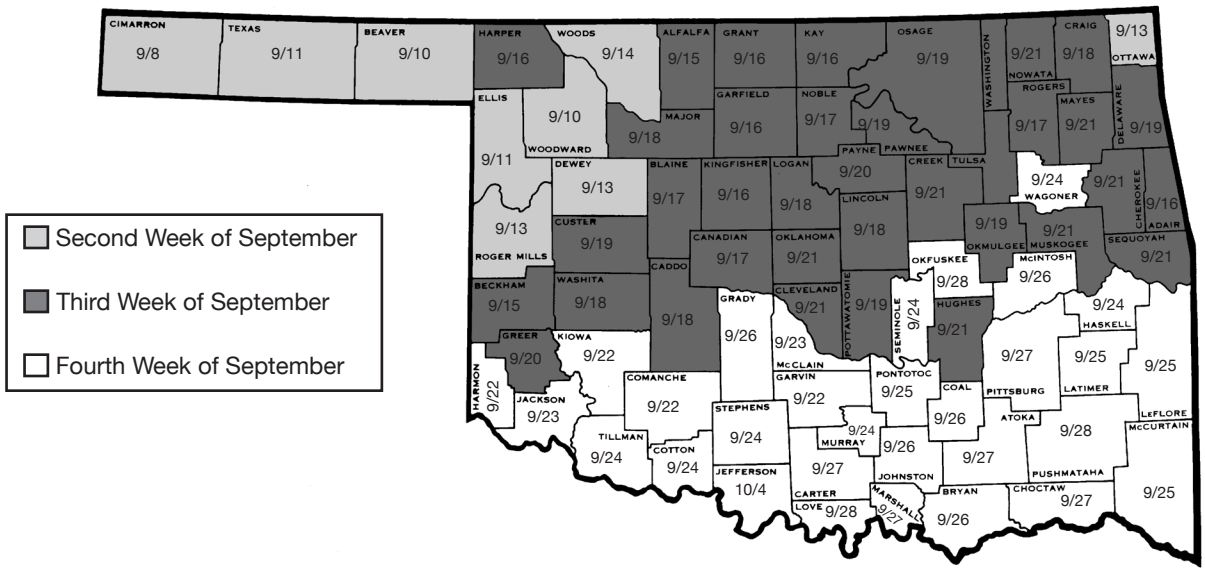

Figure 1. Optimum seeding dates of winter canola in Oklahoma.

Seeding Rate

Canola can adapt to a wide range of plant populations. Similar yields are obtained for seeding rates from 4 to 10 pounds of seed per acre. A harvest population of 4 to 8 plants per square foot is ideal, but 2 plants per square foot are adequate for a good crop.

Carefully evaluate a damaged crop in the spring before destroying it. A spring stand of only 1 or 2 plants per square foot can partially compensate for wider spacing between plants by branching. Yield from a stand this thin can be 60 to 70 percent of that from a stand of 4 to 8 plants per square foot. Even though low plant stands have resulted in relatively good yields, higher seeding rates are still recommended. Low seeding rates often produce thin stands and result in more weed problems, because they do not form a complete canopy. Thicker stands promote early, uniform maturity and thinner stalks that are easier to harvest. However, populations above 15 plants per square foot do not enhance yield and may increase lodging and disease.

On average, one pound of canola seed contains about 115,000 seed. Therefore, a seeding rate of 1 pound per acre equals about 2 1/2 seeds per square foot. Percent emergence can vary with seed quality, soil conditions, and seeding method. To account for these variables, average seeding rates for Oklahoma with good seedbed preparation at the optimum planting date should be about 5 pounds per acre. All seeding equipment should be calibrated before planting.

Seeding Depth and Row Spacing

Canola seed are small, and placement at a shallow depth is required. Best germination and emergence occur at seeding depths of 1/2 to 1 inch under conditions of adequate soil moisture. Canola can emerge from greater depths, but seeding deeper than 1 1/2 inches delays emergence, reduces seedling vigor, and delays fall crop development.

Canola seedlings have difficulty forcing their way through crusted soil. If the seedbed dries too fast, emergence from shallow depths may not be uniform.

The 6- to 10-inch row spacing of most grain drills is acceptable for canola. Row spacing in this range has little impact on final yield. Narrower spacing provides quicker row closure by the crop, reduces weed competition, and may lessen the potential for wind shattering prior to harvest.

Planting and equipment problems commonly include:

- Canola seed are small and can catch in flex tube grooves, causing uneven flow. Use smooth tubes to avoid this problem.
- For calibrating older equipment, use the settings for rapeseed.
- With some older drills, closing the drill to 5 pounds can crush the seed. Consider half speed slow down kits if that is a problem.
- Avoid deep planting furrows. Heavy rain may wash soil into them and bury the seed too deep.
- Avoid deep tractor tracks when pulling the drill. Avoid using a tillage tool between the tractor and the drill that works the soil so deeply that you get deep furrows with the drill.
- Seed box leaks should be sealed.
- Do not dust in the seed. If the seedbed is dry, wait for a rain or plant small grains.
- Planting speed should be slow enough to ensure consistent depth control.
- Fertilizer placed closer than 1/2 inch from the seed may kill them by “salting effect.” This is most noticeable with double disk drills.

Fertilizer Application

Apply preplant fertilizer before the final tillage operation. In general, canola requires about 25% more N, the same P and K, and about twice as much S as does wheat. Most continuous wheat producers do not check soil S concentrations on a yearly basis. Lack of S can greatly impact canola yield and quality. Run a soil test to check for the above nutrients.

- General fertilizer recommendations are based on winter wheat and should be used as a reference.
- Soil should be tested prior to seedbed establishment. Tests should include N, P, K, and S.
- Refer to OSU recommendations for fertilizer and lime requirements for canola.
- In the fall N, P, K, and S should be broadcast prior to planting. Only about 1/3 of the required N should be fall applied. Apply the other 2/3 of the N prior to dormancy break in the spring.
- Nitrogen can be banded or broadcast to the side of the seed. Keep fertilizer at least 1/2 inch from the seed.

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